

Experiment No. 11

“To study the ground water flow between two canals with and without rainfall”

Apparatus Name: Advanced Hydrological Apparatus



HYDROGEOLOGY LAB

CENTRE OF EXCELLENCE IN WATER RESOURCES ENGINEERING

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Procedure:

Form the two canals by excavating two trenches across the catchment tank, one near each end. Build up the intervening ground with the sand excavated from the canals and turn on the far ground water supply only. This will establish the ground water flow without recharge and the correct flow can be found by experiment.

When the water table has been determined, turn on the spray nozzles until the water table between the two canals is elevated above the water level within the canals. It will be necessary to adjust the rainfall flow rate and the valves for the two French drains in order to achieve a constant level in the two canals. This is another experiment in which the principle of superposition can be tested by allowing the water surfaces in both canals to equalize while the rain is falling. This can be done by careful regulation of the appropriate valves.

Observations and Calculations:

Rainfall Flow Rate: _____ l/min

Ground Water Inflow Rate: _____ l/min

Tapping Position m	Manometer Reading (Rainfall Only) m	Manometer Reading (Groundwater Only) m	Manometer Reading (Rainfall Only + Groundwater Only) m	Manometer Reading (Rainfall and Groundwater) m

Assignment:

- a) Did the experiment suggest that the theory of superposition is applicable to this simulation?
- b) How might simulations of this type be applied to civil engineering projects such as canal construction?